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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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## ZINC IN NOVEMBER 1996

Domestic mine production declined for the fourth consecutive month. November production was more than 9% lower than the previous month's production and nearly 13% lower when compared with production in November 1995. After increases during the previous 2 months, November smelter production showed a slight decline, but was still more than 14% over that of November 1995. Apparent consumption fell by about 9% below the previous month's consumption, but was more than 8% higher than in November 1995.

The *Platt's Metals Week* composite price for North American Special High Grade zinc in November was more than 3% higher than in October, continuing a 5-month ascension. While it was only about 2% higher than a year before, the November price was the highest for 1996. Optimism permeated most of the zinc producing industry worldwide. It was based mainly on the continued decline of London Metal Exchange (LME) stocks, which fell from 1,234,100 tons in August 1994 to 527,000 tons in November 1996. While the stock level still represented about 8 weeks of consumption, the desired level of 6 weeks consumption should be reached by summer of 1997. According to various industry sources, the final liquidation of Spanish zinc producer Asturiana de Zinc, S.A.'s surplus stock by Swiss trader Glencore International should push the price above \$1,100 per ton on the LME.

The U.S. General Accounting Office (GAO) issued a report concerning zinc sales from the National Defense Stockpile. According to the report, the market for the zinc stored in the stockpile, 91% of which is either high grade or prime western grade, includes a combination of all grades and not only high grades as contended by the American Zinc Association. Because apparent consumption of zinc metal in the United States is more than one million tons annually, the authorized sales of 50,000 tons of zinc from the stockpile should not, according to the GAO

report, cause any undue disruption of the zinc market.<sup>1</sup>

The Greens Creek polymetallic underground silver-lead-zinc-gold mine on Admiralty Island near Juneau, Alaska, is expected to reach full production of around 40,000 tons per year of contained zinc in the first quarter of 1997. The mine is a joint venture between Kennecott Greens Creek Mining Co. (70.3%) and Hecla Mining Co. (29.7%). The proven and probable ore reserves amount to about 16 million tons grading 13.7% zinc.<sup>2</sup>

Canada's Anvil Range Mining Corp. was to suspend mining operations temporarily on December 20, 1996, owing to strengthening of the Canadian dollar and to low output levels. The mill will continue processing stockpiled ore for the first 3 months of 1997, at which time operations will undergo a further review.<sup>3</sup>

In Australia, the Queensland State Government is expected to approve the construction of a zinc smelter/refinery with an initial annual capacity of 170,000 tons. The Townsville project will be built by Korean Zinc Co. Ltd. at a cost of \$775 million. Construction of the first stage, the zinc smelter, is to start in April 1997 and should be completed by October 1999.<sup>4</sup>

In a continued effort, Peru's Empresa Minera del Centro del Peru S.A. (Centromin) set a minimum price of \$8.5 million for the privatization of its Yauliyacu polymetallic complex. The underground mine, formerly known as Casapalca, has 7.3 million tons of proven and probable zinc-lead-silver-copper reserves. The processing unit has an annual capacity of 979,000 tons. The successful bidder will be required to ensure treatment of accumulated tailings over a period of 2 years. The next unit due for privatization will be the Yauricocha Mine, which has reserves of 2.8 million tons grading 5.3% zinc, plus lead, copper, silver and gold, and potential reserves of 6 million tons.<sup>5</sup>

The Bouchard-Hébert (formerly Moburn) Mine in Quebec, Canada, has become the most productive of all Cambior Inc.

mines. Average daily production reached 2,600 tons of ore, owing to an expanded grinding circuit. Production also improved at Cambior's Langlois (formerly Grevet) Mine, where milling operations began in December 1995. During the first year of operation, the daily output averaged 1,900 tons, and production of concentrate is to reach 42,000 tons of zinc, rising to 65,000 tons of zinc in concentrate by 1997.<sup>6</sup>

Zinc is becoming the most important metal for Boliden, the mining and smelting division of the Trelleborg Group of Sweden. Exploration near the Ronnskar Mine has discovered another ore body of unspecified tonnage with a grade of 14% zinc, 40% higher than the average content of the Boliden Mine, also in Sweden. Boliden, through its Spanish subsidiary Apirsa, is also investing \$100 million in the development of the Los Frailes deposit in Spain, located only 1 kilometer from the rapidly depleting Aznalcollar Mine. Los Frailes is expected to

produce 4 million tons of ore per year, yielding concentrates containing 90,000 tons of zinc, 40,000 tons of lead, 5,500 tons of copper, and 85 tons of silver.<sup>7</sup>

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<sup>1</sup>United States General Accounting Office. National Defense Stockpile. Disposal of Excess Zinc. Nov. 1996.

<sup>2</sup>CRU Zinc Monitor. Industry News. Nov. 1996.

<sup>3</sup>Metal Bulletin. Anvil Range Suspends Concentrate Output. No. 8132, Nov. 25, 1996, p. 3.

<sup>4</sup>Mining Journal. Korea Zinc Agreement. V. 327, No. 8403, Nov. 8, 1996, p. 374.

<sup>5</sup>Metal Bulletin. Centromin Sets Minimum Price for Yauliyacu. No. 8129, Nov. 14, 1996, p. 9.

<sup>6</sup>Mining Journal. Cambior Recovers. V. 327, No. 8404, Nov. 15, 1996, p. 401.

<sup>7</sup>\_\_\_\_\_. Boliden Banks on Zinc. V. 327, No. 8403, Nov. 8, 1996, p. 370.

TABLE 1  
SALIENT ZINC STATISTICS 1/

(Metric tons)

	1995 p/			1996			
	Jan.-Nov.	November	Jan.-Dec.	September	October	November	Jan.-Nov.
Production:							
Mine, recoverable zinc	553,000	47,800	601,000	46,800	46,000	41,800	533,000
Smelter, refined zinc	333,000	28,000	363,000	30,800	32,300	32,000	335,000
Oxide, (gross weight)	120,000 r/	11,300 r/	130,000	10,100	11,100	11,200	121,000
Consumption:							
Refined zinc, reported	652,000 r/	56,000 r/	638,000	52,500 r/	55,700 r/	53,600	604,000
Ores e/ 2/	2,200	200	2,400	200	200	200	2,200
Zinc-base scrap e/ 2/	110,000	10,000	120,000	10,000	10,000	10,000	110,000
Copper-base scrap e/ 2/	121,000	11,000	132,000	11,000	11,000	11,000	121,000
Aluminum-and magnesium-base scrap e/ 2/	770	70	840	70	70	70	770
Total e/	886,000 r/	77,300 r/	893,000	73,800 r/	77,000 r/	74,900	838,000
Apparent consumption, metal 3/	1,140,000 r/	90,700 r/	1,240,000	120,000	108,000 r/	98,300	1,090,000
Stocks of slab zinc, end of period:							
Producer 4/	XX	6,300 r/	XX	11,100	11,900	14,200	XX
Consumer 5/	XX	40,600	XX	37,800 r/	37,700 r/	36,500	XX
Merchant	XX	6,800	XX	4,130	2,690 r/	3,810	XX
Total	XX	53,700 r/	XX	52,900 r/	52,300 r/	54,500	XX
Shipments of slab zinc from Government stockpile	14,200	160	14,300	2,730	5,730	1,920	20,800
Imports for consumption:							
Slab zinc	792,000	59,800	856,000	88,200	69,900	NA	668,000 6/
Oxide (gross weight)	45,600	5,010	49,100	4,820	4,460	NA	47,500 6/
Ore and concentrate (zinc content)	10,300	115	10,300	2,310	264	NA	8,960 6/
Exports:							
Slab zinc	3,060	86	3,080	191	131	NA	1,650 6/
Waste and scrap (zinc content)	50,500	3,970	55,900	2,990	3,170	NA	38,600 6/
Ore and concentrate (zinc content)	416,000	13,800	424,000	34,900	2,820	NA	261,000 6/
Oxide (gross weight)	6,700	988	7,090	397	431	NA	4,970 6/
Price:							
Platt's Metals Week North American Special High Grade, average, cents per pound	53.63	52.02	55.83	51.39	51.52	53.31	50.96

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices; may not add to totals shown.

2/ Recoverable zinc content.

3/ Smelter production + imports - exports + shipments from Government stockpile + beginning stocks - ending stocks.

4/ Data from American Bureau of Metal Statistics and U.S. Geological Survey.

5/ In addition to stocks reported by consumers on a monthly basis, about 10,000 tons was estimated to be held by companies reporting on an annual basis only.

6/ Includes data through October only. November data not available at time of publication.

TABLE 2  
MINE PRODUCTION OF RECOVERABLE ZINC IN THE UNITED STATES 1/

(Metric tons)

State	1995 p/			1996			
	Jan.-Nov.	November r/	Jan.-Dec.	September	October	November	Jan.-Nov.
Missouri	44,000 r/	3,680	47,000	W	W	W	W
Other States 2/	509,000	44,100	554,000	46,800	46,000	41,800	533,000
Total	553,000 r/	47,800	601,000	46,800	46,000	41,800	533,000

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing proprietary data; included in "Other States."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes Alaska, Colorado, Idaho, Illinois, Montana, New York, Oregon, Tennessee, and State indicated by "W."

TABLE 3  
SLAB ZINC AND ZINC OXIDE 1/ AT DOMESTIC SMELTERS 2/

(Metric tons)

Month	Stocks at beginning of month		Production		Shipments		Stocks at end of month	
	Slab zinc 3/	Zinc oxide	Slab zinc	Zinc oxide	Slab zinc	Zinc oxide	Slab zinc 3/	Zinc oxide
1995: p/								
Jan.-Nov.	XX	XX	333,000	119,000	338,000	122,000	XX	XX
November	7,200	6,800	28,000	11,100	28,900	11,300	6,300	6,620
December	6,300	6,620	30,000	10,900	29,200	10,500	7,120	6,990
Total	XX	XX	363,000	130,000	368,000	132,000	XX	XX
1996:								
January	7,120	6,990	31,300	10,700	29,400	12,900	8,990	4,760
February	8,990	4,760	29,400	10,400	29,800	12,000	8,610	3,100
March	8,610	3,100	30,400	12,200	31,100	11,500	7,860	3,740
April	7,860	3,750	29,800	11,400	29,400	11,600	8,280	3,530
May	8,280	3,530	30,500	11,200	30,800	11,400	8,040	3,390
June	8,040	3,390	30,400	10,300	30,300	9,920	8,130	3,800
July	8,130	3,800	30,800	9,100	30,100	9,560	8,830	3,340
August	8,830	3,340	27,400	9,870	26,300	10,200	9,920	3,060
September	9,920	3,060	30,800	10,100	29,700	9,830	11,100	3,210
October	11,100	3,320	32,300	11,100	31,400	11,100	11,900	3,260
November	11,900	3,260	32,000	11,200	29,700	11,200	14,200	3,210
Jan.-Nov.	XX	XX	335,000	117,000	328,000	121,000	XX	XX

p/ Preliminary. r/ Revised. XX Not applicable.

1/ Gross weight; excludes impure zinc oxide produced from other processes.

2/ Data are rounded to three significant digits; may not add to totals shown.

3/ Includes stocks held at locations other than smelters.

Sources: American Bureau of Metal Statistics and U.S. Geological Survey.

TABLE 4  
ESTIMATED DISTRIBUTION 1/ OF ZINC OXIDE SHIPMENTS BY INDUSTRY 2/ 3/

(Metric tons, gross weight)

Industry	1995 p/			1996			
	November	Jan.-Nov.	Jan.-Dec.	September	October	November	Jan.-Nov.
Agriculture	W	W	W	W	W	W	W
Ceramics	322	3,090	3,390	367	465	443	5,260
Chemicals	2,610	27,500	30,000	2,040	2,460	2,600	26,400
Paints	373	4,330	4,790	311	322	334	4,040
Photocopying	W	W	W	W	W	W	W
Rubber	7,530	78,600	85,300	6,710	7,420	7,380	80,300
Other	451	6,080	8,900	401	454	476	5,260
Total	11,300	120,000	132,000	9,830	11,100	11,200	121,000

p/ Preliminary. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished.

2/ May include in-house consumption.

3/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 5  
APPARENT CONSUMPTION OF SLAB ZINC ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	1995 p/			1996			
	November r/	Jan.-Nov. r/	Jan.-Dec.	September	October	November	Jan.-Nov.
Galvanizing:							
Sheet and strip	34,700	429,000	490,000	49,300	44,200 r/	40,600	446,000
Other	10,500	144,000	168,000	17,600	14,700 r/	12,700	142,000
Total	45,200	573,000	658,000	66,900	58,900 r/	53,300	587,000
Brass and bronze	12,100	143,000	165,000	17,100	14,100 r/	13,400	142,000
Zinc-base alloy	16,000	224,000	250,000	19,300	19,100 r/	16,700	187,000
Other uses 2/	17,500	205,000	166,000	16,800	15,800	14,900	172,000
Total apparent consum	90,700	1,140,000	1,240,000	120,000	108,000 r/	98,300	1,090,000

p/ Preliminary. r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes zinc used in making zinc dust, wet batteries, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, zinc oxide, and miscellaneous uses not elsewhere specified.

TABLE 6  
AVERAGE MONTHLY ZINC PRICES

Month	North American Special High Grade cents/lb.	LME cash		Sterling exchange rate dollars/£
		cents/lb.	£/M.T.	
1995:				
November	52.02	46.75	659.65	1.562476
December	50.87	46.18	660.89	1.540505
Year average	55.83	46.82	656.59	1.572016
1996:				
January	50.59	46.22	666.59	1.528771
February	50.69	46.98	674.37	1.535960
March	51.24	48.26	696.72	1.527062
April	50.61	47.42	689.57	1.516041
May	50.50	46.98	683.57	1.515236
June	49.57	45.75	654.20	1.541590
July	49.87	45.36	643.95	1.553005
August	51.26	45.67	649.68	1.549882
September	51.39	45.37	641.53	1.559290
October	51.52	45.50	632.34	1.586314
November	53.31	47.47	629.52	1.662311

Source: Platt's Metals Week.

TABLE 7  
U.S. EXPORTS OF ZINC 1/

Material	1995		1996			
	Quantity (metric tons)	Value (thousands)	October		Jan.-Oct. 2/	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Slab zinc	3,080	\$4,340	131	\$193	1,650	\$1,970
Ore and concentrate (zinc content)	424,000	201,000	2,820	1,080	261,000	120,000
Waste and scrap (zinc content)	55,900	36,100	3,170	2,330	38,600	25,500
Powders, flakes, and dust (zinc content)	8,840	15,800	738	1,340	9,680	18,500
Oxide (gross weight)	7,090	9,110	431	488	4,970	8,260
Chloride	1,690	1,250	130	97	1,340	1,090
Sulfate	4,210	2,260	498	272	4,180	2,360
Compounds, other	1,690	4,350	62	432	1,150	4,210

1/ Data are rounded to three significant digits.

2/ November data not available at time of publication.

Source: Bureau of the Census.

TABLE 8  
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

Material	1995		1996			
	Quantity (metric tons)	Value (thousands)	October		Jan.-Oct. 2/	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Slab zinc	856,000	\$903,000	69,900	\$77,700	668,000	\$713,000
Ore and concentrate (zinc content)	10,300	4,380	264	70	8,960	3,630
Waste and scrap (gross weight)	42,300	19,700	3,040	1,160	26,500	11,000
Powders, flakes, and dust (gross weight)	11,700	20,400	905	1,780	8,750	15,100
Oxide (gross weight)	49,100	54,200	4,460	4,770	47,500	48,200
Chloride	2,450	2,370	386	348	2,060	1,840
Sulfate	5,400	3,820	356	211	3,580	2,510
Compounds, other	1,850	2,490	87	98	1,060	1,100
Dross, ashes, and fume (zinc content)	10,900	8,260	1,670	1,080	13,300	9,170

1/ Data are rounded to three significant digits.

2/ November data not available at time of publication.

Source: Bureau of the Census.

TABLE 9  
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/

(Metric tons)

Material and country	General imports			Imports for consumption		
	1995	1996		1995	1996	
		October	Jan.- Oct. 2/		October	Jan.- Oct. 2/
Ore and concentrate: (zinc content)						
Mexico	7,030	264	4,260	7,030	264	4,230
Peru	5,540	152	6,460	3,310	--	4,740
Other	463	--	230	15	--	(3/)
Total	13,000	417	11,000	10,300	264	8,960
Blocks, pigs, or slab:						
Australia	15,400	--	6,970	18,200	--	7,350
Brazil	52,900	--	26,500	67,800	--	26,500
Canada	468,000	39,100	428,000	469,000	39,100	428,000
Finland	13,500	--	11,300	13,500	--	11,300
Mexico	99,200	7,070	78,200	99,200	7,070	78,200
Peru	21,500	900	22,600	21,500	900	22,600
Russia	12,800	5,950	16,700	12,800	5,950	16,700
Spain	109,000	21,000	60,900	98,000	16,800	66,200
Other	55,300	102	11,300	53,700	102	11,300
Total	848,000	74,100	663,000	856,000	69,900	668,000
Dross, ashes, & fume (content)	10,900	1,670	13,300	10,900	1,670	13,300
Grand total	872,000	76,200	687,000	877,000	71,800	691,000
Other (gross weight):						
Waste and scrap	42,300	3,040	26,500	42,300	3,040	26,500
Sheets	332	4,580	15,300	332	4,580	15,300
Dust, powder, flakes	11,700	905	8,750	11,700	905	8,750

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ November data not available at time of publication.

3/ Less than ½ unit.

Source: Bureau of the Census.

TABLE 10  
U.S. IMPORTS FOR CONSUMPTION OF ZINC OXIDE, BY COUNTRY 1/

(Metric tons)

Country	1995	1996	
		October	Jan.- Oct. 2/
Canada	24,800	2,980	24,100
China	3,040	--	2,070
Mexico	16,600	1,240	17,900
Other	4,640	237	3,530
Total	49,100	4,460	47,500

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ November data not available at time of publication.

Source: Bureau of the Census.